D 140020 **(Pages : 3)** **Name.....**

Reg. No.....

SIXTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2026

B.B.A.

BBA 6B 13—MANAGEMENT SCIENCE

(2020 Admission onwards)

Time : Two Hours and a Half Maximum : 80 Marks

Part A

Answer **all** *questions.*

1. What is operation research ?
2. What is LPP ?
3. Explain Network diagram.
4. What is critical activity ?
5. What is decision tree ?
6. What is Expected Monetary Value ?
7. What is Transportation Model ?
8. What is Float and Slack ?
9. What is Constraints ?
10. Define Risk.
11. What do you mean by Expected value of perfect information ?
12. What is Maximax criterion ?
13. What is feasible solution ?
14. What is degeneracy of transportation problem ?
15. What do you mean by pure strategy ?

(15 × 2 = 30, Maximum ceiling 25 marks)

Turn over

Part B

Answer **all** *questions.*

16. Explain the characteristics of operation research.

17. What are the objectives of network analysis ?

18. Distinguish between PERT and CPM.

19. What are the objectives of operation research ?

20. A company has two types of pens say A and B. Pen A is a superior quality and Pen B is a lower quality. Profits on pen A and pen B are Rs. 5 and Rs. 3 per pen respectively. Raw materials required for each pen A is twice as that of Pen B. The supply of raw material is sufficient only for Rs. 1,000 pens of B per day. Pen A requires a special clip and only 400 such clips are available per day. For pen B, only 700 clips available per day.

    Formulate the problem in to a LPP.

21. What are the assumptions and limitations of game theory ?

22. Draw the network for the project whose activities with their relationships are given below : A, C, D can start simultaneously ; E > B, C ; F, G > D ; H, I > E, F ; J > I, G ; K > H ; B > A

23. Find the initial feasible solution to the transportation problem by North West Corner rule.

Destination

Origins	D1	D2	D3	D4	Supply
O1	6	4	1	5	14
O2	8	9	2	7	16
O3	4	3	6	2	5
Demand	6	10	15	4	

(8 × 5 = 40, Maximum ceiling 35 Marks)

Part C

Answer any **two** *questions.*
Each question carries 10 *marks.*

24. Explain important Functions and techniques of operation research.

25. Solve the L.P.P

Maximize $Z = 7x_1 + 5x_2$
subject to $X_1 + 2X_2 \leq 6$ ..... (1)
$4X_1 + 3X_2 \leq 12$ ..... (2)
$X_1, X_2 \geq 0.$

26. Find the initial solution for transportation problem by Vogel's method :

	To			
	W1	W2	W3	Supply
F1	2	7	4	5
F2	3	3	1	8
F3	5	4	7	7
F4	1	6	2	14
Demand	7	9	18	

27. A project has the following time schedule :

Activity	:	1-2	1-3	1-4	2-5	3-6	3-7	4-6	5-8	6-9	7-8	8-9
Duration (months)	:	2	2	1	4	8	5	3	1	5	4	3

Construct Network and compute (1) EST, LST, EFT and LFT of the activities ; (2) Total float for each activity ; and (3) Critical path and its duration.

(2 × 10 = 20 marks)

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(2020 Admission onwards)

(Multiple Choice Questions for SDE Candidates)

Time : 15 Minutes	**Total No. of Questions : 20**	**Maximum : 20 Marks**

INSTRUCTIONS TO THE CANDIDATE

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

BBA 6B 13—MANAGEMENT SCIENCE

(Multiple Choice Questions for SDE Candidates)

1. A physical model is an example of :

   (A) An iconic model. (B) An analogue model.

   (C) A verbal model. (D) A mathematical model.

2. An organization chart is an example of :

   (A) Iconic. (B) Mathematical.

   (C) Analogue. (D) None of the above.

3. The best use of linear programming technique is to find an optimal use of :

   (A) Money. (B) Man power.

   (C) Machine. (D) All of the above.

4. A feasible solution to a linear programming problem :

   (A) Must satisfy all problem constraints simultaneously.

   (B) Need not satisfy all constraints.

   (C) Must be a corner point of the feasible region.

   (D) Must optimize the value of the objective function.

5. Constraints in LP problem are called active if they :

   (A) Represent optimal solution.

   (B) At optimality do not consume all the available resources.

   (C) Both of (A) and (B).

   (D) None of the above.

6. Which of the following may not be in a linear programming formulation ?

   (A) <=. (B) >.

   (C) =. (D) All the above.

7. In linear programming problem if all constraints are less than or equal to, then the feasible region is :

(A) Above lines. (B) Below the lines.

(C) Unbounded. (D) None of the above.

8. Any activity which does not consume either any resource or time is called ———— activity.

(A) Predecessor. (B) Successor.

(C) Dummy. (D) End.

9. ———— is that sequence of activities which determines the total project time.

(A) Net work. (B) Critical path.

(C) Critical activities. (D) None of the above.

10. ———— is the latest time by which an activity can be started without delaying the completion of the project.

(A) EST. (B) EFT.

(C) LST. (D) LFT.

11. ———— is the duration by which an activity can be delayed without delaying the and project

(A) Slack. (B) Total float.

(C) Free float. (D) Independent float.

12. ———— is a scheme or design of something intended or device.

(A) Programme. (B) Project.

(C) Network. (D) Float.

13. ———— is the disconnection of an activity before the completion of activities in a project network diagram.

(A) Dangling. (B) Looping.

(C) Dummy. (D) None of the above.

14. ———— is the shortest possible time in which an activity can be delayed without delaying the project.

(A) Pessimistic time estimate. (B) Optimistic time estimate.

(C) Most likely time estimate. (D) None of these.

15. What decision-making condition must exist for the decision tree to be a valuable tool ?

(A) Certainty.

(B) Uncertainty.

(C) Risk.

(D) It does not matter, the tool is appropriate in all environments.

16. All of the following are steps in the decision-making process EXCEPT :

(A) Define the problem. (B) List alternatives.

(C) Identify the possible outcomes. (D) Compute the posterior probabilities.

17. Opportunity loss refers to :

(A) The expected value of a bad decision.

(B) The expected loss from a bad decision.

(C) The difference between actual pay off and the optimal pay-off.

(D) The regret from not having made a decision.

18. Which of the following criterion is not used for decision making under uncertainty ?

(A) Maximin. (B) Maximax.

(C) Minimax. (D) Minimize expected loss.

19. The value of the co-efficient of optimism is needed while using the criterion of :

(A) Equally likely. (B) Maximin.

(C) Realism. (D) Maximin.

20. Game theory models are classified by the :

(A) Number of players. (B) Sum of all payoff.

(C) Number of strategies. (D) All of the above.